

Deposition of aerosol particles on a sphere: The role of gravity

Galeev R., Zaripov S.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

A new method of finding the limiting particle trajectory for problems of mechanics of aerosols is proposed. The method is based on formulation of the task as a boundary value problem. The deposition of the aerosol particles on a sphere in a potential flow of an incompressible fluid with regard to gravity is studied. The collection efficiency and relative area of the surface covered with particles are calculated by varying the Stokes number at different values of the relative settling velocity. Nonmonotonous behavior of the collection efficiency under changes of Stokes number is shown.

<http://dx.doi.org/10.1080/02786820300963>
